

THE CURRENT

Hawaii State Energy Office
Clean Energy Update

Winter 2019

THE CURRENT serves Hawaii's businesses and policy makers in making informed decisions about clean energy investments and policy. Hawaii's clean energy sector is a significant driver for economic development to replace fossil fuel expenditures with home-grown industries that stimulate smart economic growth for future generations of Hawaii.

ADVANCING SOLUTIONS

Carilyn O. Shon, Energy Program Administrator

Hawaii's transition to a clean energy economy will become increasingly challenging as we advance beyond initial solutions and head into a future where choices will become more difficult. This is true in both renewable energy and energy efficiency, where Hawaii has made great progress to date.

Greater scrutiny will be required to find suitable sites for renewable energy projects given Hawaii's land constraints, and infrastructure investments must be correctly phased so that they are done in the most cost-effective way. This all must be carried out while working to make sure we use energy more efficiently to minimize the amount of new generation needed.

In this edition of *The Current* we highlight two initiatives at the Hawaii State Energy Office (HSEO) to address these challenges. The first feature story is an update on the creation of a visualization tool by HSEO's Energy Systems and Planning Branch to help energy sector stakeholders better understand the policy choices needed to move toward a 100 percent renewable energy system. Being able to visualize complex data sets in a graphic or pictorial format will allow users of the tool to make better decisions regarding Hawaii's clean energy transformation.

The second feature story addresses the work being done by HSEO to bring stakeholders together in a collaborative way to explore new and innovative ways to achieve deeper energy efficiency savings. The latest development on this front was a symposium sponsored by HSEO last fall that brought together a panel of energy efficiency experts from the mainland and Hawaii to share their ideas and insights with local energy sector stakeholders. The day-long event featured informative presentations and lively discussions on a host of topics that will help inform our clean energy transformation.

FEATURED STAFF:

ACCELERATING CLEAN TRANSPORTATION

Margaret Larson, Energy Systems and Planning Branch

The state committed to a zero emissions clean economy by 2045 through mitigation of greenhouse gas emissions, reducing and sequestering atmospheric carbon and greenhouse gases produced within Hawaii. The clean economy target compliments the state's commitment to the Paris Agreement and statutory clean transportation goals calling for "the ultimate elimination of Hawaii's dependence on imported fuels for electrical generation and ground transportation."

The Energy Systems and Planning Branch (ESP) is leading HSEO's efforts to develop analysis, implementation plans, and partner agreements to facilitate the adoption of clean transportation—particularly electric vehicles—across Hawaii. ESP Energy Analyst Margaret Larson has been involved in HSEO's clean transportation efforts for more than a decade and is currently supporting the expenditure of Hawaii's \$8.125 million allocation under the Volkswagen Settlement Environmental Mitigation Trust. Additionally, Margaret assists HSEO in managing a U.S. Department of Energy State Energy Program grant aimed to develop a fleet electrification feasibility study and implementation plan for state government fleets.

Margaret and the ESP team recognize that transitioning to a clean transportation sector presents unique challenges and requires dedicated and coordinated inter-agency, legislative, and private sector coordination and collaboration. "Every day I see potential and pathways to expand measurable strategies and mechanisms to support a carbon neutral and zero emissions clean economy in ground transportation. The dedication of the ESP team is inspiring, and I appreciate that I am surrounded by enthusiastic intelligent colleagues who push for the implementation of specific tactics, actions, and policies that support economically viable clean transportation projects throughout Hawaii," she says.

CLEAN ENERGY VISION

The Hawaii State Energy Office's (HSEO) mission is to maximize Hawaii's energy self-sufficiency and security by developing and utilizing local energy resources in a balanced way.

In doing so, HSEO will guide our state toward the Hawaii Clean Energy Initiative goals to achieve 100 percent renewable energy in the electricity sector by 2045, reduce electricity consumption by 4,300 gigawatt-hours by 2030, and reduce petroleum use in transportation. To this end, HSEO works toward the deployment of clean energy infrastructure and serves as a catalyst for energy innovation and test bed investments. By achieving these goals, HSEO will grow the clean energy sector and transform Hawaii's economy.

LEADING THE CHARGE

Renewable Fuels Production Tax Credit

For calendar year 2018 and beyond, taxpayers claiming Hawaii's renewable fuels production tax credit (RFPTC) will be subject to several requirements. A revised procedure requires RFPTC-seeking taxpayers, at their expense, to have an independent, third party provide a certified statement filed with DBEDT. A revised RFPTC requirement has reduced the minimum renewable fuels production level from 15 billion Btu to 2.5 billion Btu and expanded the qualifying renewable feedstock that can be used to produce the renewable fuels.

Community Discussion on Electric Utility Regulatory Models

HSEO is conducting a study on alternative electric utility and regulatory models in Hawaii. As part of this study, community meetings were held to gather stakeholders' input on the future of electric utility regulatory models in achieving state energy goals. The statewide meetings held in November provided preliminary findings from previous community discussions and solicited final feedback from stakeholders.

VW Settlement – Stay Informed

HSEO has been designated the lead agency to administer Hawaii's \$8.125 million trust allocation from the Volkswagen Settlement. Funds from the trust allocation will be used on projects to reduce emissions from medium and heavy-duty vehicles in Hawaii. For updates on state activities regarding the Volkswagen Settlement Environmental Mitigation Trust subscribe to the VW Settlement mailing list.



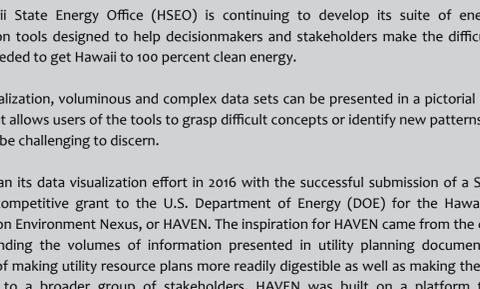
**Renewable Fuels
Production Tax
Credit**



**Community
Discussion on
Electric Utility
Regulatory Models**



**VW Settlement -
Stay Informed**



ANALYZING AND COMMUNICATING THROUGH VISUALIZATION

The Hawaii State Energy Office (HSEO) is continuing to develop its suite of energy system visualization tools designed to help decisionmakers and stakeholders make the difficult planning choices needed to get Hawaii to 100 percent clean energy.

Using visualization, voluminous and complex data sets can be presented in a pictorial or graphical format that allows users of the tools to grasp difficult concepts or identify new patterns that would otherwise be challenging to discern.

HSEO began its data visualization effort in 2016 with the successful submission of a State Energy Program competitive grant to the U.S. Department of Energy (DOE) for the Hawaii Advanced Visualization Environment Nexus, or HAVEN. The inspiration for HAVEN came from the challenge of comprehending the volumes of information presented in utility planning documents with the objective of making utility resource plans more readily digestible as well as making the plans more accessible to a broader group of stakeholders. HAVEN was built on a platform that utilizes advanced computing infrastructure and state-of-the-art visualization technology.

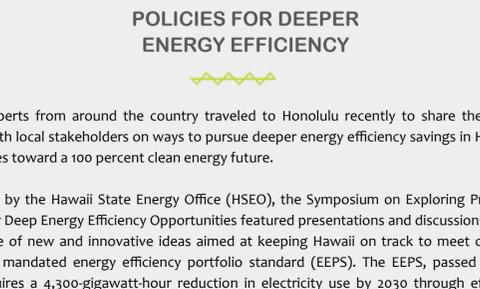
Concurrent with that effort is a collaboration with the National Renewable Energy Laboratory through the support of the DOE focused on the development of a production cost and capacity expansion model which will allow users to execute planning model runs to validate, explore, and compare existing energy plans as well as create scenarios with sensitivities built around selected variables. The data output from the model could then be imported into HAVEN to explore the tradeoffs of different pathways to a carbon neutral economy.

With the model HSEO will be able to run specific scenarios to capture the impact of policy proposals or analyze specific trade-offs to better chart Hawaii's path forward. Using hourly data, the model will be able to analyze the electricity sector with a vision of incorporating related sectors, such as transportation to help answer important questions such as the potential impact of transportation electrification on renewable energy development and land utilization.

"It is critical that stakeholders have a clear understanding of the potential impact decisions will have on Hawaii's energy landscape," said Carilyn Shon, HSEO administrator. "Our goal is to demonstrate visualization as a means of analyzing and communicating the tradeoffs and interdependencies of resource deployment to achieve 100 percent clean energy in Hawaii."

HSEO's visualization and modeling efforts are meant to be dynamic tools that can be used to assess the cost effectiveness of policies and investments as Hawaii moves forward. While the two distinct efforts can provide value independently they can also leverage each other to portray a more comprehensive picture of Hawaii's energy ecosystem.

For more information on HSEO's visualization tools visit energy.hawaii.gov/energyplanning/overview.



EXPLORING PROGRAMS AND POLICIES FOR DEEPER ENERGY EFFICIENCY

Energy experts from around the country traveled to Honolulu recently to share their ideas and insights with local stakeholders on ways to pursue deeper energy efficiency savings in Hawaii as the state moves toward a 100 percent clean energy future.

Sponsored by the Hawaii State Energy Office (HSEO), the Symposium on Exploring Programs and Policies for Deep Energy Efficiency Opportunities featured presentations and discussions exploring a wide range of new and innovative ideas aimed at keeping Hawaii on track to meet or exceed its statutorily mandated energy efficiency portfolio standard (EEPS). The EEPS, passed in to law in 2009, requires a 4,300-gigawatt-hour reduction in electricity use by 2030 through efficiency and conservation measures.

The day-long symposium, held November 14 at the Homer Maxey International Trade Resource Center, attracted a diverse group of about 45 energy sector stakeholders, including representatives from gas and electric utilities, energy service companies, engineering firms, government, and the non-profit sector. HSEO Administrator Carilyn Shon served as facilitator for the event, which featured presentations by:

- Jennifer Potter, commissioner at the Hawaii Public Utilities Commission (PUC);
- Raghur Sudhakara, section manager for Regulatory and Stakeholder at Consolidated Edison;
- Jeff Schlegel, policy and planning consultant to the Massachusetts Energy Efficiency Advisory Council and Connecticut Energy Efficiency Board; and
- Chuck Goldman, staff scientist for the Electricity Markets and Policy Group at Lawrence Berkeley National Laboratory.

Hawaii was able to hit its most recent (2015) interim target under the EEPS statute, but the panelists agreed that further gains in the EEPS will be harder to come by and require fresh approaches.

"Hawaii has done a very good job so far in getting the biggest bang for the buck, largely because you have your done a lot with lighting," Goldman said. "If you want deeper savings you will have to broaden your programs and target underserved markets, such as low-income customers," he said.

A forthcoming study on energy efficiency potential in Hawaii being conducted by a contractor for the PUC will serve as a guide on where to focus efforts, Goldman added. Whatever energy efficiency programs are ultimately chosen, they must offer solutions that customers want, Goldman said. "It will be a challenge. Customers want choices."

That point was echoed by others on the panel. "Hawaii and other states would benefit from understanding the customer better and tailoring their solutions," Schlegel said.

Potter said that as new energy efficiency programs are rolled out they must not only be "customer centric," but customized to solve specific distribution system challenges and constraints.

"Up until now lighting has been the low-hanging fruit. We now have new opportunities to focus on electricity usage behind the meter and optimize consumption. We're looking at things like marrying computers and refrigerators—this is beyond any kind of technology that we've traditionally thought of as the ocean we can't swim in," Potter said. "If we could build a wonderful civilization out here in the middle of the ocean we can certainly achieve our goals."

View symposium material at energy.hawaii.gov/energy-efficiency-symposium.



DID YOU KNOW?

Hawaii ranks #7 in the 2018 U.S. Green Building Council's annual list of Top 10 States for LEED (Leadership in Energy and Environmental Design). LEED is the world's most widely used and recognized green building rating system, ranking states in terms of square feet of LEED space per state resident. LEED certified spaces use less energy and water resources, save money for families, businesses and taxpayers, reduce carbon emissions, and create a healthier environment for residents, workers, and the larger community.



ENLIGHTENING NEWS & UPDATES

Hawaii Natural Energy Institute receives \$1.3M to advance wave energy
(University of Hawaii News, 1/14/19)

Kauai reaches goal of 50% renewable power
(Honolulu Star-Advertiser, 1/09/19)

We Are Still In: Hawaii Stands By Paris Agreement at International Climate Talks
(Hawaii Public Radio, 1/02/19)

Hawaii taxpayers claim close to \$86M in renewable energy tax credits in 2016
(Pacific Business News, 12/26/18)

First of its kind renewable gas facility opens on Oahu
(KITV, 12/12/18)

Hawaii group partners with United Nations to achieve sustainability goals
(Honolulu Star-Advertiser, 12/10/18)

Department of Business, Economic Development & Tourism
Hawaii State Energy Office
235 S. Beretania Street, 5th Floor | Honolulu, Hawaii 96813

phone (808) 587-3807
email dbedt.energyoffice@hawaii.gov